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Contribution from the States Relations Service, A. C. True, Director, and the Bureau of Animal Industry, A. D. Melvin, Chief

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JUDGING THE DAIRY COW AS A SUBJECT OF INSTRUCTION IN SECONDARY SCHOOLS.[1]

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INTRODUCTION.

The scoring and judging of the dairy cow is rapidly becoming popular as a practicum in the teaching of agriculture in secondary schools. The work has done much to arouse interest in animal husbandry and dairying. A need has been felt for specific directions as an aid toward making this work more practical, and it is the aim of this bulletin to help fill this want.

CLASSROOM DISCUSSION.

Use of illustrative material.—When conditions approach the ideal the greater part of stock judging is learned with the animals to be judged present (fig. 1). As a matter of convenience preliminary lessons are usually given in the classroom. The teacher should bear in mind, however, that the student learns largely through what he sees, and should make use of an abundance of illustrative material. Before proceeding with a study of the dairy type the student should learn the names of the parts of a cow. It is not safe to assume that the high-school student knows all the terms used in judging. A diagram such as given in figure 2 is useful in showing the ideal dairy type as well as in giving the names of parts. This outline may be made into a chart or copied upon the blackboard. If drawn upon the board the names of the parts may be erased and the students

[1] Prepared under the direction of C. H. Lane, Chief Specialist in Agricultural Education.
Note.—This bulletin is intended for the use of teachers of secondary agriculture.

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FIG. 1.—A good dairy type.

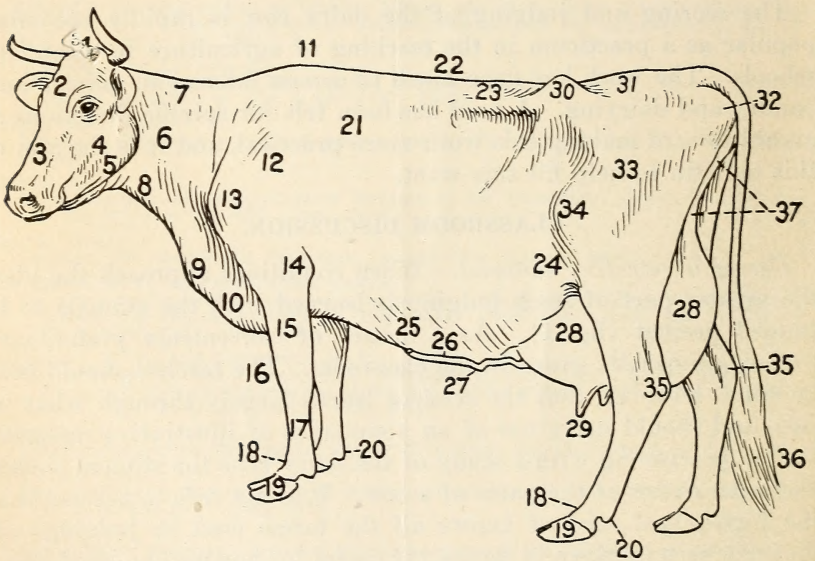

FIG. 2.—Outline of dairy cow with parts named: 1, poll; 2, forehead; 3, bridge of nose; 4, cheek; 5, jaw; 6, neck; 7, crest of neck; 8, throat; 9, dewlap; 10, brisket; 11, withers; 12, shoulder; 13, point of shoulder; 14, elbow; 15, arm or forearm; 16, knee; 17, shank; 18, ankle; 19, hoof; 20, fetlock; 21, crop; 22, chine—back; 23, loin; 24, flank; 25, milk well; 26, mammary vein or milk vein; 27, navel; 28, udder; 29, teats; 30, hook, or hook bone, hips; 31, pelvic arch; 32, pin bone, or rump bone; 33, thigh; 34, stifle; 35, hock; 36, switch or brush of tail; 37, escutcheon.

asked to fill them in. While discussing the dairy type it is well to have illustrations of good dairy cows constantly before the students. The teacher should make use of good pictures of prize winners as they appear in live-stock journals. If files of these papers are not kept, the good illustrations should be clipped and mounted upon cards for classroom use. A projection lantern with an opaque attachment will be found valuable in this work.[1]

The typical dairy cow.—In order to judge the dairy cow intelligently the student should understand that the modern dairy animal is very highly organized, virtually a living machine, the chief func-

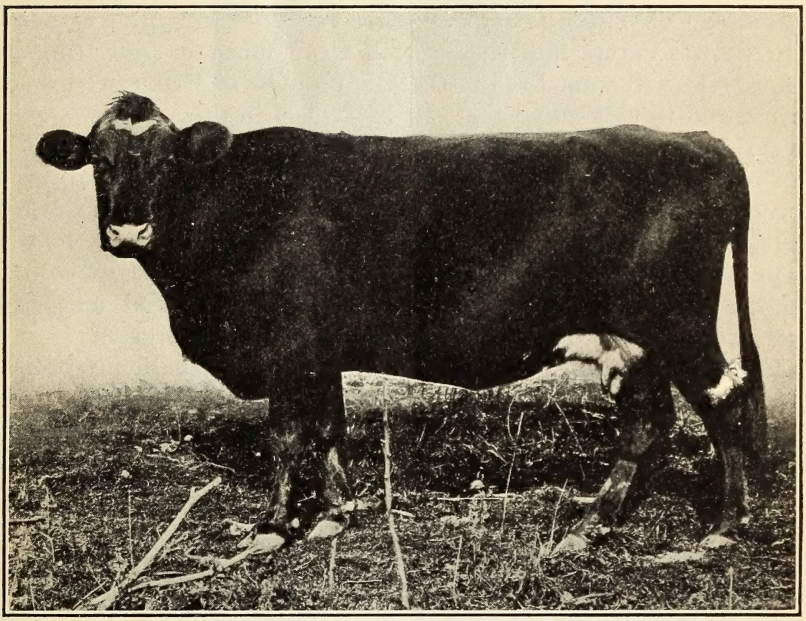

FIG. 3.—An unprofitable dairy cow.

tion of which is to make a valuable human food out of grains and coarse fodders. Originally cows gave only milk enough to support their calves until they were able to eat sufficient other food for self-support; but man, through selective breeding, with care and good feeding, has developed animals which yield a large surplus of milk. All so-called dairy cows do not yield a profitable surplus. As the expense of maintenance is large and variation in milk production is great, many cows are being kept which do not give milk enough to pay for their keep. One of the most important phases of dairy management is the elimination of unprofitable animals (fig. 3). It

[1] Lantern slides illustrating types and breeds of cattle, including the illustrations of this bulletin, may be obtained from the Office of Agricultural Instruction of the States Relations Service. Charts and stencils for use on blackboards may be made by tracing the outline of a diagram thrown on paper or cloth by a lantern.

is also important to know which of those yielding a profit are the best, that their offspring may be used in improving the herd. Lessons in judging are an important part of school work in dairying, as they aid the student in learning the desirable points of dairy animals.

How dairy cows are judged.—The teacher should bear in mind that the aim of the lesson is to give the student such knowledge concerning the dairy cow, and to develop his judgment to the extent, that he will get full value in buying or selling cows. If a practical dairyman of good judgment is buying a cow he wants to know the amount of feed she consumes, how much milk she is giving, the percentage of butter fat, and her record for maintaining the milk flow. An accurate milk record will mean much in indicating her value. He will want to milk the cow himself, to watch her eat and drink, and to be assured that she is in good health. If he is going to use her for breeding purposes, he will desire to learn what he can of her breeding and of her ability to transmit her qualities to her offspring. If she is a registered animal, he may learn a good deal from her pedigree. The importance of these points may be impressed by having students weigh and test the milk of cows in the district, keep records of the milk and fat produced, and study the records of production of ancestors in their pedigrees.

If the keeping of herd records is made one of the home projects of the students, it will be well for them to learn the methods used in testing cows in cow-testing associations and for advanced registry. Information may be obtained from the United States Department of Agriculture and from the breed associations.

Records of production are not always kept, and frequently it is desirable to know the value of cows not giving milk. Fortunately, there is a marked correlation between the form or type of dairy cows and their power to produce. It is very important that the dairyman know what constitutes true dairy conformation in milch cows, so school work in judging becomes largely a study of dairy types.

The dairy type.—If beef animals have been studied prior to taking up the work with dairy breeds, from the beginning there will be a natural comparison of the beef type with the dairy type (fig. 4). If an outline of a beef animal has been on the blackboard it will be helpful to transform it to represent a dairy cow before the students. Charts and pictures will be helpful in bringing out the contrast between the two types (fig. 5).

The functions of production and reproduction in dairy cows are so closely related that the form which indicates heavy production will usually denote a good breeder. When viewed from the side,

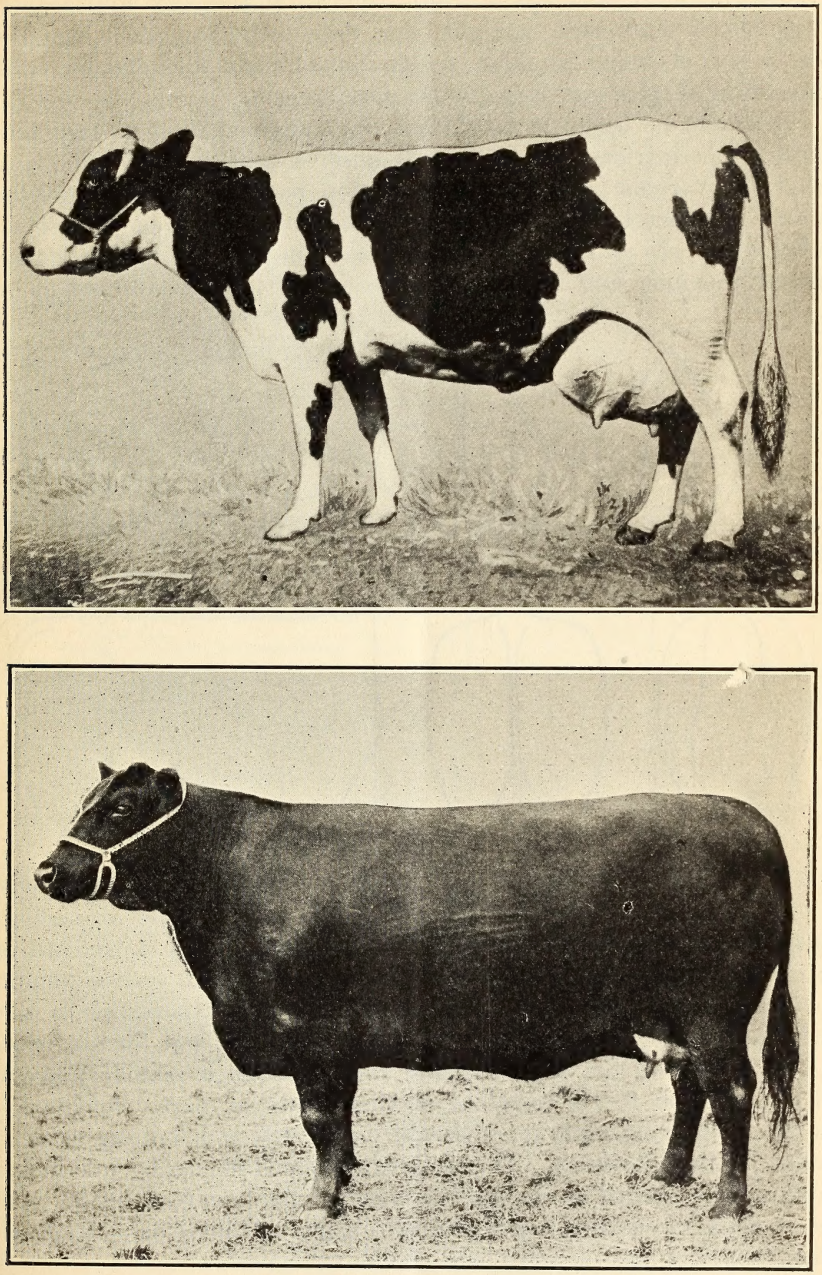

FIG. 4.—Comparison of (upper) dairy and (lower) beef form.

one great difference in conformation becomes at once apparent. While the beef cow has a short, square, and blocky appearance, with short, thick neck, straight back, deep body, and short legs, the dairy cow shows an angular, wedge-shaped body with slender neck, incurving thighs, and large udder development.

It should be borne in mind that the transformation of feed into milk is an intricate process which goes on within the animal and that the various points of conformation particularly noted in the dairy type are but indications that this process will be carried on efficiently. As an aid to students in examining an animal in a systematic manner and in order that no details may be overlooked by

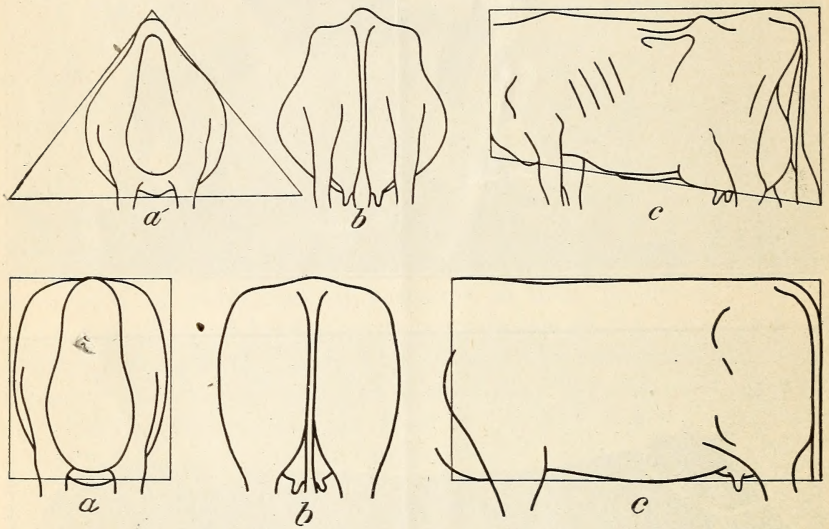

FIG. 5.—Outlines showing comparison of (upper) dairy and (lower) beef type from (*a*) front, (*b*) rear, and (*c*) side views.

beginners, score cards are used in stock judging. The score card is a classification of the points of the animal, giving to each a weight or percentage intended to indicate its relative importance to the whole. These points relate, of course, to the external form of certain portions of the animal's body and so far as is possible have a direct relation to the function of that organ or part. As is true with all classifications, there should be as little overlapping as possible in the divisions. The following-described cards for dairy animals are offered as embodying many of the best features of such score cards in use in the agricultural colleges. It must be understood that these are general score cards for dairy types.

General score card for the dairy cow.

Points.		Perfect score.	Percentage value.	Student's score.	Instructor's score.
1. General form		9			
Wedge shaped, when viewed from side, top, and front	6				
Size for the breed—Jersey, 800 pounds; Guernsey, 1,050 pounds; Ayrshire, 1,000 pounds; Holstein, 1,200 pounds	3				
2. Quality		7			
Hide—thin, mellow, pliable, and loose	2				
Hair—fine, soft	1				
Secretions—abundant, yellowish	1				
Flesh—muscular, free from bunchiness	1				
Veins—large and prominent	1				
Bone—fine and clean	1				
3. Head		6			
Forehead—broad between the eyes and dished according to breed	1.0				
Face—medium in length, clean cut in outline, dished below eyes	.5				
Nostrils—large	1.0				
Muzzle—broad, but not coarse	1.0				
Jaws—wide at base, strong	.5				
Ears—medium sized, thin, hair fine, blood vessels showing, secretion abundant	.5				
Eyes—full, prominent, clear, and bright	1.0				
Horns—small at base, incurving, attached close together at poll	.5				
4. Neck		2			
Moderately thin, of good length, nearly free from loose skin, neatly joined, throat clean.					
5. Forequarters		11			
Shoulders—withers sharp; shoulder blades lean	2				
Chest—broad and deep, well sprung foreribs; large heart girth; moderately full crops; brisket light	8				
Forelegs—straight, fine bone, strong	1				
6. Body—capacity		18			
Back—straight, strong, vertebræ prominent	5				
Ribs—long, flat, well sprung, wide apart	3				
Abdomen (barrel)—long, deep, broad, well held up; loin broad, strong and level; flanks low	10				
7. Hindquarters		12			
Hips—wide apart, prominent	3				
Rump—long, wide, level	3				
Pin bones—widely spaced, on level with hips	3				
Thighs—incurving; escutcheon broad, extending well up on pin bones	1				
Tail—tapering, fine boned, long and neatly set on; switch, long	1				
Hind legs—squarely placed not sickle hocked, bone fine	1				
8. Mammary system		35			
Udder—large; quarters even and not cut up between; extending well up behind and well forward in front; not fleshy; soft and pliable	20				
Teats—squarely placed; even in size; of convenient size for milking; free from lumps, not leaky or hard to milk	8				
Mammary veins and wells—veins long, branching, tortuous, entering body well forward; wells large	7				
Total		100			

General score card for the dairy bull.

Points.	Perfect score.	Percentage value.	Student's score.	Instructor's score.
1. General form	16			
Masculinity	11			
Size for the breed—Jersey, 1,200 pounds; Guernsey and Ayrshire, 1,500 pounds; Holstein, 1,600 pounds	5			
2. Quality	10			
Hide—thin, mellow, pliable, loose	3			
Hair—fine, soft	2			
Secretions—abundant, yellowish	1			
Flesh—well muscled, free from bunchiness	1			
Veins—large, prominent	1			
Bone—strong and clean	2			
3. Head	10			
Forehead—very broad between the eyes, slightly dished	2			
Face—medium in length	1			
Nostrils—large	1			
Muzzle—broad	2			
Eyes—prominent, large, clear, bright	3			
Horns—well proportioned	1			
4. Neck	5			
Medium in length, very large prominent crest; neatly joined; throat free from loose skin.				
.5 Forequarters	16			
Shoulders—withers moderately sharp; well muscled	5			
Chest—broad, deep, large heart girth, crops full, brisket moderate in size	10			
Fore legs—straight, squarely placed, wide apart, strong bone	1			
6. Body—capacity	19			
Back—straight, strong, vertebræ prominent	7			
Ribs—flat, well sprung, wide apart	2			
Abdomen (barrel)—long, deep, broad, well held up; loin broad, strong, level; flanks low	10			
7. Hindquarters	16			
Hips—wide and prominent	3			
Rump—long, wide, level	6			
Pin bones—widely spaced, on level with hips	4			
Thighs—incurving	1			
Tail—tapering; fine bone; neatly set on; long, fine switch	1			
Hind legs—squarely placed, not sickle hocked, bone clean and strong	1			
8. Rudimentaries	6			
Teats—squarely and evenly placed; large	3			
Mammary veins—large, tortuous	2			
Milk wells large	1			
9. Scrotum	2			
Well developed—strongly held up.				
Total	100			

CLASSIFICATION OF POINTS IN REFERENCE TO UTILITY.

Having a thorough knowledge of the names and locations of the parts of the cow, the next problem is their classification from a functional point of view. There are certain fundamental points covering the animal as a whole or a combination of a number of organs which will be first considered.

General form.—The general impression as to form which the judge receives when an animal is brought before him is an important consideration. This varies greatly between beef and dairy animals and is often termed "dairy type" or, in referring to animals of an individual breed, "breed type." "Wedge shaped" defines this general form. There are three distinct wedges to a typical dairy cow—namely, side, top, and front.

Side wedge: The side wedge is best observed by standing 30 feet or more from the cow and to her side. The lines of this wedge are the top and bottom lines of the cow. The point of the wedge is at the nose and the wide part at the flank. This wedge is most commonly defective on account of the top line not being straight. This may be caused by a sway back, a drooping rump, or a neck which is set at an angle to the back. A sway back or a sloping rump is much more serious than a neck which forms an angle with the backbone.

Lack of depth in the flank is a serious defect in the side wedge of a dairy cow and is usually accompanied with lack of capacity in the barrel and faulty mammary development. The angle of all wedges should be as wide as possible. The bottom line of the cow, forming one side of this wedge, can not be expected to be straight in the same sense that the top line is straight. There will be depressions and irregularities, but the general outline of the wedge should be present. The lower line will begin at the nose, touch at the brisket, follow the lower line of the stomach, and touch the lowest point in the udder.

Top wedge: The point of the top wedge is at the withers, with the lines drawn on either side between the point of the withers and the hip bones. The plane of the wedge is horizontal, while those of the side and front wedges are perpendicular. This wedge is defective when the withers are not sharp, the lines not straight, or the hip bones not wide enough apart. The lines are not straight when the ribs are not well sprung or when the loins are weak.

Front wedge: The point of the front wedge is at the withers. The lines follow the shoulder blades, the wide part being at the junction of the shoulder blades and the forelegs. The wedge shape seems to have a direct relation to dairy production in the dairy cow, but inasmuch as this relation in most cases is in connection with individual organs it will come up under a detailed discussion of the parts.

Size: Other things being equal, the larger an animal, the better. Generally size and quality are not closely correlated and the dairyman is led to choose a happy medium. It is true, however, that an undersized animal is undesirable even though it possesses extreme quality. The aim should be to obtain all the size possible with good quality.

Quality.—Quality is indicated by a thin, loose, pliable skin; medium-sized, clean, closely knit bones, and firm, clean, muscular tissue (fig. 6). The mucous membranes are the extension of the external skin; coarseness in the hide indicates the same condition in the mucous membrane. The membranes of the stomach and intestines are active agents in the digestion and assimilation of the feed. Experience and observation show that coarseness or stiffness in the skin is likely to be associated with poor digestive and assimi-

lative powers. A spongy, coarse bone is objectionable because it is not strong, and is likely to be associated with low vitality and general inefficiency. Excessive flesh on a dairy cow while in milk indicates that there is not the desired specialization of milking function, but rather that the feed is used to produce flesh. The flesh should be muscular and free from fat.

Beginning at the head, the individual parts of the cow will now be taken up and an attempt made to describe the desirable form which indicates production.

FIG. 6.—The nature and condition of the digestive organs is revealed in the skin and its covering of hair.

Head.—The heads of the male and female are much the same except that more size and heaviness are expected in that of the former. As a whole, the head should have a clean cut outline and be free from any coarseness of bone, flesh, or skin. In the bull score card more weight is given this part than in the cow score card. This is owing to the fact that the general character of the bull and his masculinity are evidenced in his head (fig. 7). The main function performed by the head is the taking in and mastication of feed. A strong, muscular muzzle and jaws indicate ability to handle large quantities of feed. The form and quality of face, forehead, eye, and horn indicate the nervous energy and refinement essential to productive ability.

Neck.—The necks of the cow and the bull are radically different. That of the cow should be of medium length, slender, free from flesh and loose skin; it should be small at the junction with the head and should join the shoulders smoothly. The neck of the bull should be of medium length, small at the head and swelling into a prominent crest. The crest in the bull indicates masculinity and should be both high and broad.

Forequarters.—Withers: The withers should be sharp, the ends of the shoulder blades fitting close to the spinal processes and ending some distance below the top of them. This junction should be so

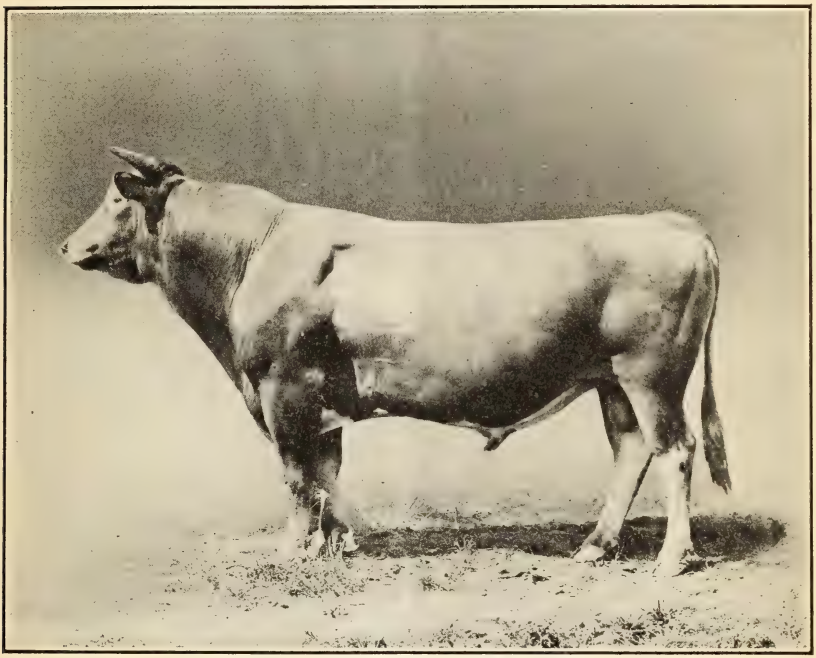

FIG. 7.—A good type of dairy bull.

smooth as to form a straight line from the top of the spinal processes down the shoulder blade to its junction with the foreleg.

Body—Capacity.—Back: It is very important that there be great strength in this region, as the back supports the weight of the abdomen or barrel.

Ribs: Flat ribs are found to be associated with the wedge-shaped, lean appearance of the dairy animal as compared with the round ribs of the beef animal.

Barrel: The barrel, in both the male and the female, should be broad, deep, and full and well held up with well-sprung ribs. The barrel contains the stomach, liver, and intestines, the chief organs of digestion. A good-sized barrel indicates large capacity for digest-

ing feed (fig. 8), one of the essential functions of the dairy cow. Although the barrel should be large, it should not sag away from the backbone into what is popularly called a "pot belly," leaving loose skin in the flank, nor swing when the animal walks. This indicates an objectionable weakness in the muscles of the abdomen, as these muscles should hold the barrel close up to the backbone.

Loins: The loins are that portion of the backbone just in front of a line drawn between the hip bones and extending forward to the beginning of the short ribs. The loins should be broad and strong. A sag or drop in this section of the back indicates weakness. A lack

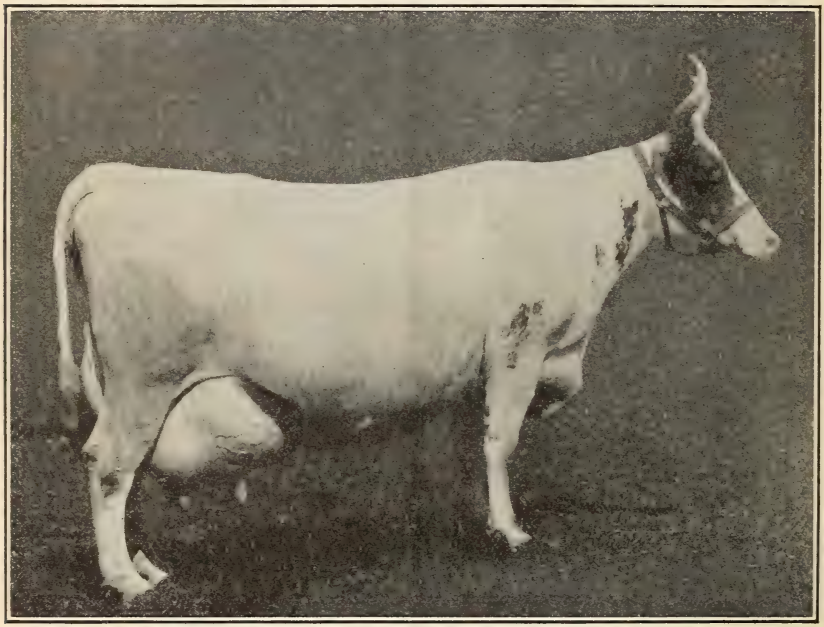

FIG. 8.—A large barrel indicates capacity for feed.

of width in this region is caused by short processes on each side of the backbone.

Hindquarters.—Hip bones: The hip bones should be wide apart and prominent.

Rump: The rump should be long, wide, and level. The length is measured from the hips to the pin bones. The rump is level when a plane passed through the top of the hip and pin bones is horizontal. A high pelvic arch is not desirable. The pelvic arch is inclosed by the spinal column and the pelvic bones. The joints of this arch constitute the hip and pin bones and this region contains the greater part of the reproductive organs in which the calf develops. It is asserted by some breeders that a short rump is associated with a short udder and a sloping rump with a sloping udder.

Pin bones: These bones are the parts of the pelvis which are located on each side of the tail. They should be prominent, widely spaced, and on a level with the hips. Low-placed pin bones are the cause of a sloping rump.

Thighs: The inner surface of the thighs should be thin and curved out so as to give ample room for the udder. Beefy, thick thighs are an objection, as they do not indicate specialization in the milk-producing function and do not give room for a broad udder.

Tail: The tail should be level in its attachment to the spinal column, small at this junction, and the bone should extend to the hocks; it should be thin throughout, and the switch long and fine.

FIG. 9.—A well-developed udder.

Escutcheon: The escutcheon or "milk mirror" is the region above the udder between the thighs where the hair grows in a different direction.

Hind legs: The legs should be evenly and squarely placed on the body. The bones of the legs should be clean and close in texture. The joints should be ample in size to form leverages for the actions of the muscles, but they should be free from growths of any nature, either fleshy or cartilaginous. When the hocks are set farther back than the rear of the body they are described as sickle hocks.

The mammary system.—The mammary system is composed of the udder, teats, mammary or milk veins, and wells.

The udder: The udder should be large, wide, and have a long attachment to the body of the cow (fig. 9). In shape it should be

somewhat rounding, with the lower part, floor, or sole of the udder as level as possible. The development should be symmetrical, so that the quarters are even in size. The more common defects in the udder are short attachment in front and low attachment behind; lack of width; sagging or pendulousness; a lack of uniform development, and fleshiness (fig. 10).

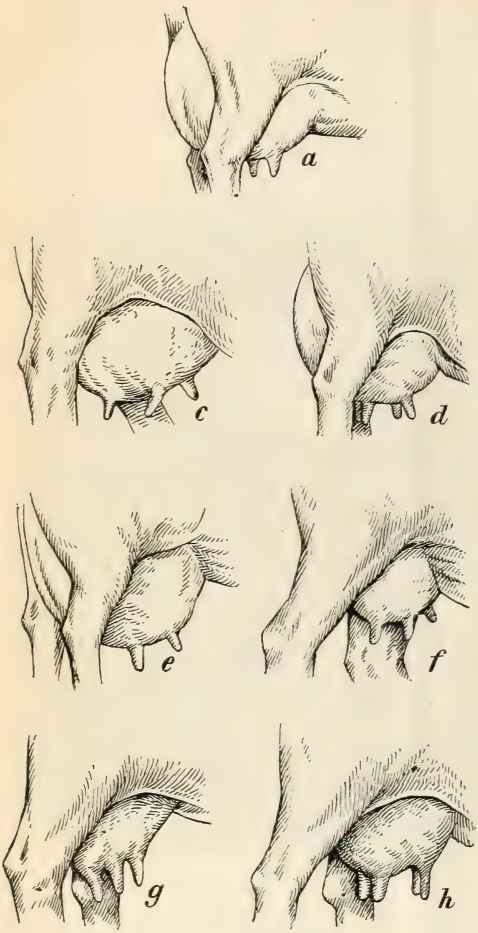

FIG. 10.—(*a*) Good type of udder; (*c*), (*d*), (*e*), (*f*), (*g*), and (*h*), poor types of udders.

Probably poor fore udders are as common as any other defect. Lack of development in this region causes a short udder attachment to the cow's body and very frequently accompanies a pendulent udder.

Pendulent udders indicate a short body attachment and a weakness of the muscular tissue which holds the udder to the body. Such udders are liable to bruise by swinging when the animal walks or runs, and also are in danger of being stepped on by the cow when she rises.

Three kinds of tissue go to make a cow's udder, namely, glandular, muscular, and fleshy. The first kind is the secreting tissue that produces the milk, and the more there is of it the better.

The function of muscular tissue is to support the udder and insure its firm attachment to the body. (Fig. 11.)

Fleshy tissue is undesirable in the udder and its presence indicates lack of quality and producing ability. Glandular tissue has a springy, elastic feeling and an udder in which this predominates collapses to a great extent when empty. On the other hand, when fleshy tissue composes a large portion of the udder, this latter is firm and does not collapse when empty. Considerable skill is necessary to determine the kind of tissue in the udder by the feeling;

the safer way is to have the cow milked dry and thus judge the character of the udder.

Teats: The teats should be of convenient size for milking, and should be evenly and squarely placed at the center of each quarter, so that the bottom will be in a horizontal plane and the distance equal between teats. They should be free from bunches either internal or external, and the sphincter muscles at the bottom of the teats should be rigid enough to prevent the leaking of milk but not stiff enough to cause difficult milking.

Mammary or milk veins and wells: The mammary veins are located on each side of the belly, extending from the udder forward

FIG. 11.—Udder attached well forward and well up behind and free from fleshiness.

toward the shoulders. They should be large, long, branching, and tortuous and should enter the abdomen well toward the shoulders. After that portion of the blood required for milk production is taken away the remaining portion returns to the heart through these veins. A large vein indicates that a great amount of blood is being returned to the heart and that consequently a large quantity of blood passed into the udder and was available for producing milk. In the heaviest milkers these veins are very crooked and often branching. In some cases they enter the abdomen through several openings on each side. The milk well, or the opening through which the vein enters the abdomen, should be large and well forward. (Fig. 12.)

PRACTICE JUDGING.

Preparing for a judging trip.—Exercises in stock judging, like other field trips, are often failures because proper preparation is not made for them. The teacher should know beforehand just where he is going and what he is going to do. The majority of secondary schools do not own a dairy herd, so that it is necessary for the class to make use of the cows belonging to neighboring farms. Arrangements should be made with the farmer so that there will be no misunderstanding upon taking the class to his premises. The teacher should select herds which contain animals suitable to his purpose and, as far as possible, select farms where conditions are favorable for judging. It is important to see that there are suitable inclosures and facilities for handling the animals. Cows should be selected which may be easily handled, especially for the first trip. If weather

FIG. 12.—Prominent mammary veins.

is likely to be unfavorable, facilities for working under cover will be necessary. Wet, muddy barnyards are to be avoided. The instructor will find it to his advantage to examine thoroughly the animals he intends to use. When comparative judging is practiced it is especially important that the teacher be well acquainted with the animals and their relative points. The judging trip should be announced ahead of time so that all students may be prepared for outside work without delaying the class.

The first trip.—If the students have had no experience in judging cattle it will be well to use the first judging period in learning how to approach the animal, in checking up and applying what they have learned about naming the parts, and in going over the points of the card with the instructor. Boys may need caution that their approach to the animal may be quiet and friendly. Girls may need assurance that they may handle the animal without being harmed.

If possible, the animal chosen for the first lesson should approach the perfect dairy type, as it will aid in fixing that ideal in the minds of the students.

If the class has been studying the beef type and the students have had experience in judging cattle, the first period may be spent in comparing a dairy cow with a beef animal.

Scoring the dairy cow.—After the students have become familiar with the card and the method of approaching the animal they may make individual scores. The student should have well fixed in his mind at this time an ideal dairy form. The card will give the score for perfection in the various points; the student will enter a score which represents the points which he judges the animal to be worth. The sum of these points gives the score of the animal. It should be remembered that the use of the card is chiefly for the purpose of training the student in observation, so that no details should be omitted. The value of the card in judging animals depends largely upon the care with which it is used. It will be noted that the weights of different points vary greatly.

The scoring should be according to the following basis: 1.0, perfect; 0.9, very slight defect; 0.8, slight defect; 0.7, defective; 0.6, marked defect; and 0.5, poor.

The number of points given for any particular part of the animal should be multiplied by the classification of that point, in the mind of the student. For example, chest is assigned 8 points and the animal examined is found to be defective. Eight times 0.7 equals 5.6, which represents the final score for chest. In this manner the various parts of the body are scored in a proportional manner.

The value of accurate first impressions should be emphasized. As the student approaches the animal he is impressed at once by her temperament as indicated by her general shape and the development of her milk organs. An impression also as to her capacity and health will be evident. Observations should be taken from all sides of the animal, as development is not always uniform. Students should make an estimate of the cow's weight, and, if possible, their estimates should be compared with the weight as shown by the scales. A measuring tape will be useful at first in aiding the student to get proper ideas of proportions.

After the cow is sized up in a general way the student should proceed to go over her carefully point by point, commencing at the head and working in a systematic manner. Considerable attention should be given the barrel as an indication of capacity for feed, and the chest capacity as an indication of strong constitution. (Fig. 13.) Each student should feel of the skin and hair and observe the secretions in the ears. Special attention will be given the udder in its relation to milking capacity. Each student should examine carefully the mammary veins and milk wells. While it may not be possible for each student to assist in milking the cow, this feature of practical judging should be emphasized.

Students should work independently. Conversation and comparison of scores are to be avoided while the work is being done. The teacher should use his judgment in determining whether his time may be spent better in aiding the students or in scoring the animal as a basis for checking their results.

Checking results.—If time permits, it is well, while the animal is before the class, to compare the scores given and discuss its points. If there is no further time, the cards may be collected and graded by the teacher and then discussed at the next class. A thorough discussion of the score given will be very profitable. The teacher should not be arbitrary in his judgment, but should make allowance for a difference of opinion.

If the records of production are obtainable they may be used in checking the judgment of students as expressed in the scores given. Often the farmer, although he does not keep a record, has an accurate idea of the worth of his cow. The judgment of the student may be compared with the judgment of the farmer.

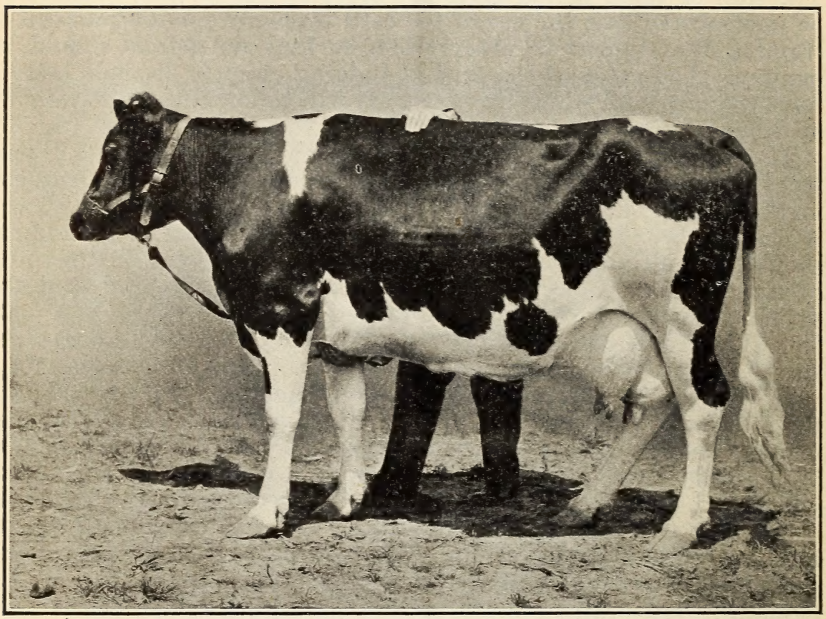

FIG. 13.—Large heart girth showing good chest capacity.

Comparative judging.—The scoring of animals is but preliminary to what is now considered to be the more efficient method of judging; that of comparison and placing according to merit. The student who has used the score card carefully with a number of cows should be prepared to take in the general conformation and detect the details which indicate the worth of the animal. In trying out the judgment of students in comparative judging, usually at first four cows, which have marked differences in ability, are chosen. As skill is developed animals more nearly equal may be chosen. It is well to have students study the market value of dairy cows in the district and place a money value on the cows judged. (Fig. 14.)

Reasons should be required for each placing. The form filled out below is suggested for this exercise. Each animal should be numbered or lettered.

Name of student, John Jones. Date, April 26, 1916.
Class of animals, Dairy cows.

Placing: First, B. Second, D. Third, A. Fourth, C.

1. I place B over D, because she approaches more nearly the ideal dairy form and has an udder of greater capacity, etc.

2. I place D over A, because she has greater chest capacity, indicating a stronger constitution, etc.

3. I place A over C, because she has a larger barrel, indicating a greater capacity for feed, etc.

Further practice with score card.—For later judging it will be well to select animals of varying ability as milk producers. If records may be obtained, it will be profitable to compare the scores given cows of good records with those whose records show they are poor producers.

A study of the dairy breeds usually follows the study of type. While all true dairy breeds are of the dairy type, there are minor differences which characterize each breed. (Fig. 15.) These breed characteristics are provided for in special score cards, which may be obtained from the breeders' organizations. Where several breeds are popular there will naturally be a good deal of breed comparison in the judging.

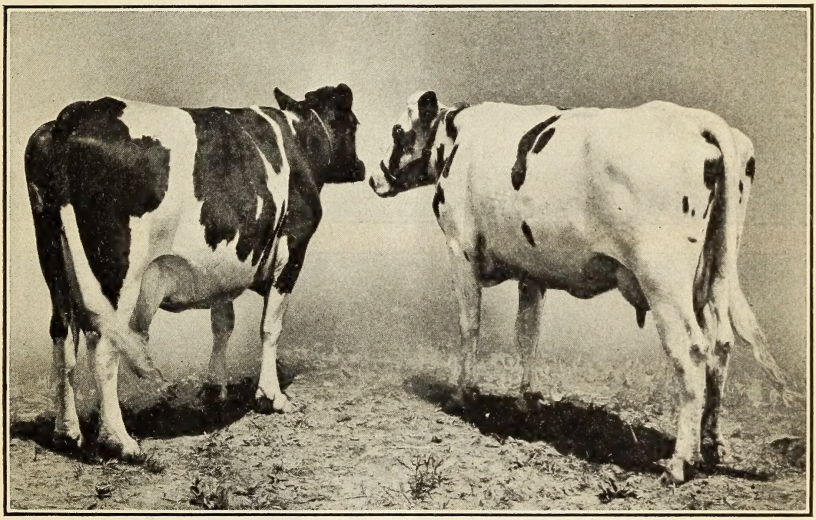

FIG. 14.—A difference in capacity of barrel.

Judging at fairs.—In some sections competitive stock judging at fairs and stock shows has become very popular. If these competitions are conducted with the student's development paramount, they have high educational value. Whether students enter a judging competition or not, the student of dairy husbandry can learn much at these shows. A progressive teacher will take advantage of live-stock exhibitions and will endeavor to organize the students and supervise their visit so that the best results may be obtained. The better fairs not only give the students an opportunity to see the best live stock of the section represented, but they also give them an opportunity to observe the methods of experienced judges. The work of the judges should be observed closely by the visiting class, and explanations of reasons for their placing carefully noted. The fairs give an opportunity for comparison of types and breeds which is seldom found in the school district.

At some of the schools local fairs are held in connection with the work in stock judging. A local exhibition of dairy cattle will aid

in arousing interest in dairying and a desire for better stock, as well as give the students practice in judging. A program may be given in connection with the show. While men well qualified should give the main addresses concerning dairy cattle, a place should be re-

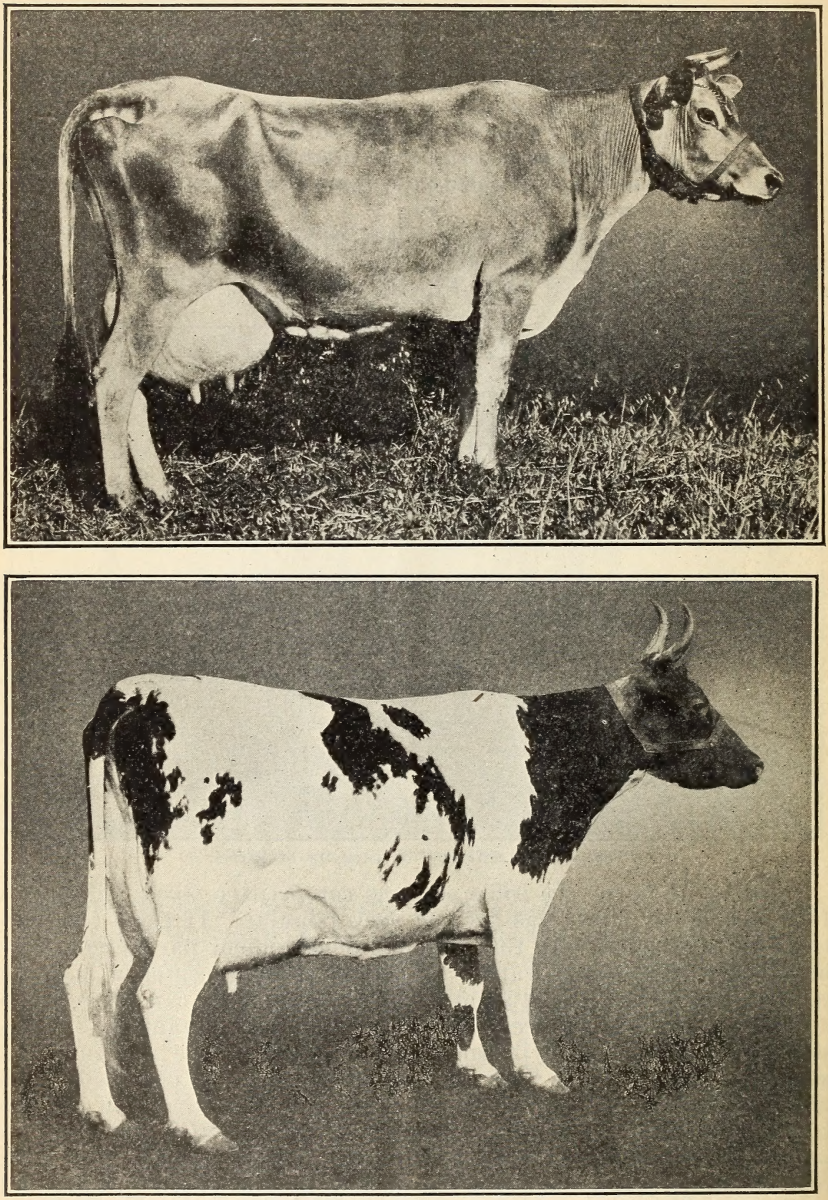

FIG. 15.—Dairy types of different breeds: (upper) Jersey; (lower) Ayrshire.

served for the members of the class. A debate on some question pertaining to type or breed of dairy cattle would be interesting as well as instructive.

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